

WHAT IS CLAIMED IS:

1. A silver halide emulsion comprising at least one monovalent Au(I) complex coordinated with a compound represented by the following formula (1):



wherein R^1 and R^2 each independently represents an alkyl group, an alkenyl group, an alkynyl group, an aryl group or a heterocyclic group, R^1 and R^2 may combine with each other to form a 3-, 4-, 5-, 6- or 7-membered ring, and Ch represents a sulfur atom, a selenium atom or a tellurium atom.

2. A silver halide emulsion chemically sensitized by a monovalent Au(I) complex coordinated with a compound represented by formula (1):



wherein R^1 and R^2 each independently represents an alkyl group, an alkenyl group, an alkynyl group, an aryl group or a heterocyclic group, R^1 and R^2 may combine with each other to form a 3-, 4-, 5-, 6- or 7-membered ring, and Ch represents a sulfur atom, a selenium atom or a tellurium atom.

3. A chemical sensitization method for silver halide emulsions, comprising chemically sensitizing a silver halide emulsion using a monovalent Au(I) complex

coordinated with a compound represented by formula (1):



wherein R^1 and R^2 each independently represents an alkyl group, an alkenyl group, an alkynyl group, an aryl group or a heterocyclic group, R^1 and R^2 may combine with each other to form a 3-, 4-, 5-, 6- or 7-membered ring, and Ch represents a sulfur atom, a selenium atom or a tellurium atom.

4. The silver halide emulsion as claimed in claim 2, wherein in the Au(I) complex, Ch of formula (1) is coordinated to the gold atom.

5. The silver halide emulsion as claimed in claim 2, wherein the Au(I) complex is a gold complex represented by the following formula (2):



wherein L^1 represents a compound represented by formula (1), L^2 represents a compound represented by formula (1) or a halogen atom, provided that L^1 and L^2 may be the same or different or may be combined, X represents a counter salt necessary for neutralizing the electric charge of the compound, m represents 0 or 1, and n represents a value of 0 to 1 and may be a decimal.

6. The silver halide emulsion as claimed in claim 5, wherein L^1 and L^2 in formula (2) are the same compound and the metal complex is a symmetric gold complex.

7. The silver halide emulsion as claimed in claim 5, wherein in formula (2), either L^1 or L^2 is substituted by at least one water-soluble group.

8. The silver halide emulsion as claimed in claim 5, wherein in formula (2), L^1 and L^2 are substituted by at least one water-soluble group.

9. The silver halide emulsion as claimed in claim 2, wherein in formula (1), Ch is a sulfur atom.

10. The silver halide emulsion as claimed in claim 2, which has a silver chloride content of 90 mol% or more.

11. A preparation method for gold sulfide colloids, comprising preparing a gold sulfide colloid using a Au(I) complex represented by formula (2):



wherein L^1 represents a compound represented by formula (1), L^2 represents a compound represented by formula (1) or a halogen atom, provided that L^1 and L^2 may be the same or different or may be combined, X represents a counter salt necessary for neutralizing the electric charge of the compound, m represents 0 or 1, and n represents a value of 0 to 1 and may be a decimal.

12. The preparation method for gold sulfide colloids as claimed in claim 11, wherein the gold sulfide colloid is prepared in a protective colloid solution.

13. A silver halide emulsion chemically sensitized by a gold sulfide colloid prepared according to the method claimed in claim 11.

14. A silver halide emulsion comprising at least one gold compound represented by the following formula (3):



wherein Ch represents a sulfur atom, a selenium atom or a tellurium atom, M represents an alkali metal, W represents a counter salt necessary for neutralizing the electric charge of the compound, x, y and p each represents an integer of 1 or more, and z represents an integer of 0 to 2.

15. A silver halide emulsion chemically sensitized by a gold compound represented by formula (3).

16. A chemical sensitization method for silver halide emulsion, comprising chemically sensitizing a silver halide emulsion using a gold compound using a gold compound represented by formula (3).

17. The silver halide emulsion as claimed in claim 15, wherein in formula (3), Ch is a sulfur atom or a selenium atom.

18. The silver halide emulsion as claimed in claim 15, wherein in formula (3), $x+y$ is from 4 to 40.

19. The silver halide emulsion as claimed in claim 15, wherein in formula (3), Au is a monovalent ion.

20. The silver halide emulsion as claimed in claim 15, wherein in formula (3), the $[Au_xCh_yM_z]$ ion has a cyclic or cage structure.

21. The silver halide emulsion as claimed in claim 15, wherein tabular grains having an aspect ratio of 8 or more occupy 50% or more of the projected area of all silver halide grains.

22. A silver halide photographic light-sensitive material comprising a support having thereon at least one silver halide emulsion layer, wherein at least one of said silver halide emulsion layers contains a silver halide emulsion chemically sensitized using at least one member selected from a Au(I) complex coordinated with a compound represented by the following formula (1) and a gold compound represented by the following formula (3):



wherein R^1 and R^2 each independently represents an alkyl group, an alkenyl group, an alkynyl group, an aryl group or a heterocyclic group, R^1 and R^2 may combine with each other to form a 3-, 4-, 5-, 6- or 7-membered ring, and Ch

represents a sulfur atom, a selenium atom or a tellurium atom;



wherein Ch represents a sulfur atom, a selenium atom or a tellurium atom, M represents an alkali metal, W represents a counter salt necessary for neutralizing the electric charge of the compound, x, y and p each represents an integer of 1 or more, and z represents an integer of 0 to 2.

23. A silver halide photographic light-sensitive material comprising a support having thereon at least one silver halide emulsion layer, wherein at least one of said silver halide emulsion layers contains at least one member selected from a Au(I) complex coordinated with a compound represented by the following formula (1) and a gold compound represented by the following formula (3) :



wherein R¹ and R² each independently represents an alkyl group, an alkenyl group, an alkynyl group, an aryl group or a heterocyclic group, R¹ and R² may combine with each other to form a 3-, 4-, 5-, 6- or 7-membered ring, and Ch represents a sulfur atom, a selenium atom or a tellurium atom;



wherein Ch represents a sulfur atom, a selenium atom or a

tellurium atom, M represents an alkali metal, W represents a counter salt necessary for neutralizing the electric charge of the compound, x, y and p each represents an integer of 1 or more, and z represents an integer of 0 to 2.